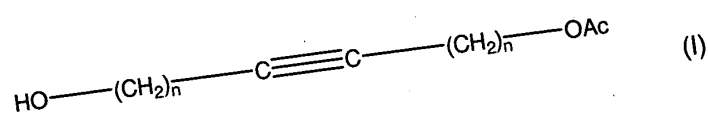


What is claimed is:

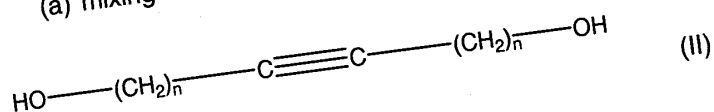
1. A process for producing a compound of the formula:



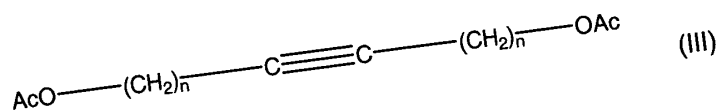
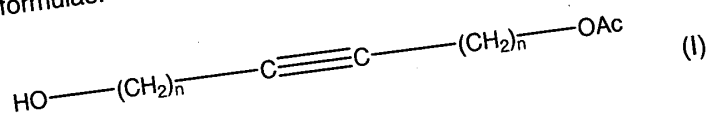
wherein $n = 1-5$

which comprises

- (a) mixing a compound of the formula:



with an effective amount of a first lipase, an acyl donor, and an optional organic solvent to yield a crude mixture of monoacetate and diacetate of the formulas:



- (b) suspending the crude mixture in a buffer with a second lipase to yield an extractable monoacetate and diacetate of formulas (I) and (III); and

- (c) purifying the extracted monoacetate to a compound of formula (I) having a purity of at least 98% and a yield of at least 50%.

2. The process of Claim 1 wherein the temperature in step (a) is about 20°C to about 70°C.
- 5 3. The process of Claim 1 wherein the temperature in step (a) is about 30°C to about 55°C.
4. The process of Claim 1 wherein the temperature in step (a) is about 40°C.
5. The process of Claim 1 wherein the time in step (a) is about 3 hours to about 15 hours.
- 10 6. The process of Claim 1 wherein the time in step (a) is about 5 hours to about 10 hours.
7. The process of Claim 1 wherein the time in step (a) is about 8 hours.
8. The process of Claim 1 wherein the organic solvent comprises tetrahydrofuran, ethyl acetate, acetonitrile, toluene, hexane, ethyl ether, *tert*-butylmethyl ether (TBME).
- 15 9. The process of Claim 1 wherein the acyl donor is isopropenyl acetate.
10. The process of Claim 1 wherein the acyl donor is vinyl acetate.
- 20 11. The process of Claim 1 wherein the first lipase is a hydrolytic enzyme acting on an acyl donor.
12. The process of Claim 1 wherein the second lipase is a hydrolytic enzyme acting on an acyl acceptor.
- 25 13. The process of Claim 1 wherein the temperature of step (b) is about 20°C to about 55°C.

14. The process of Claim 1 wherein the temperature of step (b) is about 24°C.
15. The process of Claim 1 wherein the time of step (b) about 4 hours to about 12 hours.
- 5 16. The process of Claim 1 wherein the time is about 5 hours to about 10 hours.
17. The process of Claim 1 wherein the time is about 8 hours.
18. The process of Claim 1 wherein the pH is about 5.0 to about 8.5.
19. The process of Claim 1 wherein the pH is about 6.8 to about 6.85.
- 10 20. The process of Claim 1 wherein the compound of formula (I) is 4-hydroxy2-butynyl acetate.